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Emery
TAYLOR, TAYLOR, & HOBSON,

SLATE STREET WORKS,

LEICESTER, ENGLAND.

And at Faraday House,
8 and 10, Charing Cross Road,
London.

..
1897.
..

PRICE ONE SHILLING.

The old era.

It is well known that the sharpness of definition in ordinary photographs falls off rapidly toward their margins and corners.

This fault is due to two defects possessed by all old forms of lenses.

To improve marginal definition, photographers have been compelled to stop their lenses down; but this partial remedy proves often worse than the disease, by making it difficult or impossible to follow the golden rule of photography and give ample exposures.

To under-exposure is due that other common defect of photographs:—the exaggerated blackness and lack of detail in shadows.

With all the old forms of lenses, fuzzy margins or under-exposure is thus commonly inevitable.

The two defects of the old forms of lenses.

CURVATURE OF IMAGE.

Photographic plates are usually *flat*; and one defect of ordinary lenses is that they form images which are not flat like the plates, but dished like this:—



Obviously an image thus curved cannot be focussed sharply all over at once on a flat plate.

If the centre be focussed, the margins must be out of focus. If the margins be in focus, the centre cannot be.

Curvature of image is a defect of ordinary lenses of *every* make.

ASTIGMATISM.

No point in an image can be sharply defined unless the lens condenses accurately to it all the light which it receives from the corresponding point of the object.

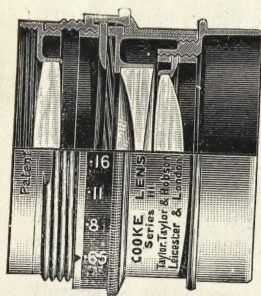
Lenses of *all ordinary types* fail in this:—That they are totally unable to condense to fine points the light which passes *obliquely* through them to the margins and corners of their plates. The images at these parts are formed, not of sharply defined points of light, but, so to speak, of overlapping smears or smudges, whose size can only be reduced by stopping down the lens, and which no amount of careful focussing can sharpen.

The presence and peculiar form of this fuzziness is due to what is called Astigmatism.

The new era.

The invention of lenses which, with large apertures, form images at once flat like the plates and sharply defined throughout, marks a new era in photography; making it easy to secure ample exposures with full detail and sharp definition all over the plates.

These improvements are attained in *the highest perfection and by the simplest means* in the Cooke lens here illustrated.



COOKE LENS

Showing its three simple glasses and the screw adjustments by which final perfection is obtained.

Cooke lenses, Series III, will produce perfectly sharp definition at any part of the plate, with full aperture $f/6.5$.



THIS TEST SHEET CONTAINS THE WRITTEN OPINIONS OF WELL-KNOWN PRACTICAL MEN CONCERNING COOKE LENSES FOR PHOTOGRAPHY.

"The Cooke lens is the best I have ever used."

"It is worthy of note that while the Continental opticians have been getting towards perfection by increasing the complexity of the construction, going from four to six, eight, ten, or more lenses combined to form the whole instrument, our countryman, Mr. Dennis Taylor who invented the Cooke lens, has got probably as near perfection as any of them with only four lenses! (Since reduced to three)."

"With full aperture (f/5 of a Cooke lens I made a quarter-plate negative of a page of Science for J.C. and I find the letterpress sharply defined all over the plate."

"We have tested the Cooke lens in the way set down in your pamphlet, also as a group in the studio. It is the finest lens we ever made a negative with."

"The Cooke lens covers to the edges with wonderful sharpness."

"Definition is sharp and crisp over the whole plate. It has been surprising to me to find such remarkably clear definition of distant landscape objects when in focus. No other of the many lenses I have tried has pleased me so much."

THE ROYAL PHOTOGRAPHIC SOCIETY'S ONLY MEDAL, 1895, FOR MERIT, WAS AWARDED FOR COOKE LENSES

RAPID RECTILINEAR
FOCUS 5.05 INCHES.
APERTURE f/8
EXTREME ANGLE OF VIEW 54°
FOCUSSED AT CENTRE
TEST NO. 39

TAYLOR, TAYLOR & HOBSON, AT SLATE STREET, LEICESTER.

"Its fitness of field and freedom from astigmatism, when compared with a rapid rectilinear of similar aperture and focal length, is wonderful."

"I have just used the Cooke lens for an interior at f/5. The result is astonishing. If I had not done it myself I should have scarcely believed it possible."

"An excellent lens, much superior to others I have used."

"The more I use the Cooke lens the more satisfied I am with its performance. It is the lens par excellence for hand cameras."

"I have never seen a lens do anything as well as so large an aperture as this Cooke lens."

"I am more than satisfied with the Cooke lens. It is the lens par excellence for hand cameras."

"I consider your quarter-plate Cooke lens a remarkable instrument and one that all amateur desirous of turning out excellent work should possess."

"The definition even with the largest aperture is perfect and crisp up to the very edge of the plate."

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THE LINES OF THESE CROSS-HATCHURES ARE LESS THAN THIRTEEN THOUSANDTHS OF AN INCH THICK. OBSERVE HOW THE COOKE LENS DEFINES THEM.

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COOKE LENS SERIES III
FOCUS 5.05 INCHES.
APERTURE f/8
EXTREME ANGLE OF VIEW 54°
FOCUSSED AT CENTRE
TEST NO. 40

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COOKE LENSES HAVE WON GOLDEN OPINIONS FROM ALL SORTS OF PEOPLE.

T.T.&H. T.T.&H.

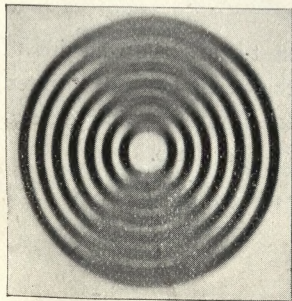
T.T.&H. T.T.&H.

ALONE AMONG ANASTIGMATS, COOKE LENSES ARE OF PURELY ENGLISH ORIGIN. THE LATE J. THALL TAYLOR SAID "ENGLISH" ARE JUSTIFIED IN FEELING PROUD OF THEIR NOTHING SO SIMPLE, NOTHING MORE PERFECT.

The accompanying photographs show plainly the superiority of the Cooke lens in comparison with *the best* of the old types.

The two tests were made under exactly the same conditions; the first with a high-class lens of the R.R. type by a leading maker, and the second with a Cooke lens, Series III. Fuller particulars are given at the centres of the photographs. The conditions chosen were those under which all hand-camera and most other lenses generally work; the lens axis being normal to the plate and the image focussed near the axis.

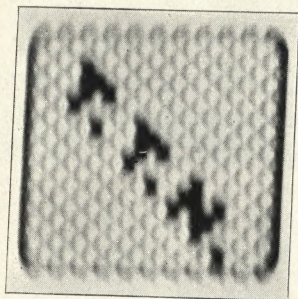
The fuzziness of the margins in the first test is due to the Curvature of image and the Astigmatism referred to on page 3, and to the latter specially is due the peculiarity noticeable for example in the concentric circles near the corners of the photograph, *the special fuzziness of lines which point radially toward the centre of the plate.*



A set of these Concentric circles is here shown magnified, to exhibit more plainly this curious defect.



These circles may be regarded as *analyzing* the effect of astigmatism; while the effect is shown in a *general way* by the sets of rulings or cross-hatchings containing the letters T.T.H. and extending in a band diagonally across the photograph.



One of these sections, the work of a similar lens by another leading maker, is shown here, enlarged to exhibit the defect more plainly.

The falling off of definition toward the margins of the upper photograph is further seen in the printed lettering, and in the comb-like figures which extend cross-wise through the centre of the plate.

In the lower photograph, if the before-mentioned objects be examined by the aid of a magnifier, they will show how very perfect is the action of the Cooke lens.

For example:—the letters “T. T. & H.” at the centres of the concentric circles are only about fourteen-thousandths of an inch high, and their lines only between two and three thousandths of an inch thick; yet these are all sharply defined.

Again, in the cross-hatching near the top right-hand corner of the test, the lines, though less than three-thousandths of an inch thick, are sharp and distinct from the included spaces.

A yet more exacting test is this:—that the sharp teeth of the comb-like figures are uniformly sharp throughout the plate.

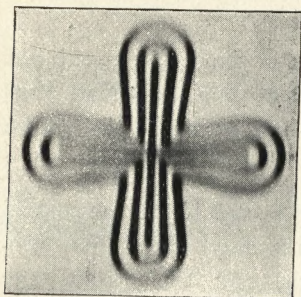
These tests afford the clearest possible evidence of the unsurpassable excellence of Cooke Lenses.



MAGNIFIED OBLIQUE IMAGES.

THE TWO ERAS.

THE OLD.



THE NEW.

